

1. A method of manufacturing an x-ray tube component for use in an x-ray generating apparatus, the method comprising the steps of:

forming a substrate material into the shape of the x-ray tube component;

depositing a radiation shielding coating on the substrate, the coating comprising a material that limits the amount of x-radiation that is able to pass through the coated portion of the substrate material to a predetermined level.

2. A method as defined in claim 1, wherein the depositing the coating step is performed with a plasma spraying process.

3. A method as defined in claim 1, further comprising the step of depositing an bond coating between the substrate and the radiation shielding coating, the bond coating enhancing the strength of the bond between the substrate and the radiation shield coat.

4. A method as defined in claim 2, wherein the depositing the bond coating step is performed with a plasma spraying process.

5. A method of manufacturing an x-ray tube housing for use in an x-ray generating apparatus, the method comprising the steps of:

forming a substrate metal material into the shape of the housing;

plasma spraying a bond layer onto at least a portion of the surface of the substrate;

plasma spraying a powder metal material over at least a portion of the bond layer so as to create an x-ray shield layer on the substrate, the powder metal material comprising at least one powder metal that is a dense x-ray absorbing material; and

continuing the plasma spraying step until the thickness of the x-ray shield layer is at least approximately .085 inches.

6. A method of manufacturing as defined in claim 5, wherein the substrate metal material is selected from one of the following: Kovar; Alloy 46; nickel; copper; stainless steel; molybdenum; and alloys of the foregoing

7. A method of manufacturing as defined in claim 5, wherein the powder metal material further comprises at least one powder metal having a thermal expansion characteristic that is substantially similar to that of the substrate metal material.

8. A method of manufacturing as defined in claim 6, wherein the powder metal material having the thermal expansion characteristic is iron.

9. A method of manufacturing as defined in claim 5, wherein the powder metal that is a dense x-ray absorbing material is tungsten.

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